mJ/cm^2 may be affected. Of course, the duration for which the photoimageable material of layer **104** is exposed to one or more appropriate wavelengths of radiation is dependent upon the intensity of such radiation. By way of example only, such a dose may be provided with an exposure lamp having an intensity of 20 mW/cm^2 by exposing the photoimageable material of layer **104** to radiation from the exposure lamp for a duration of about 30 seconds.

[**0051**] When photoresist is used as the photoimageable material of layer **104**, a post exposure bake (PEB) may then be conducted, as known, to selectively cross-link selected regions **106** of layer **104**. An exemplary PEB process for SU-8 2025 having a thickness of about 70 μm to about 85 μm includes heating the SU-8 2025 to a temperature of about 65° C. for about one minute, then increasing the temperature of the SU-8 2025 to a temperature of about 95° C. for about seven minutes.

[**0052**] Development of a photoresist is then effected, as known. Of course, the developer chemical and the duration of exposure of the photoresist to the developer chemical that is used should be appropriate for the type and thickness of photoresist used. In the SU-8 2025 example, the SU-8 developer available from MicroChem could be used, with the photoresist being exposed to the SU-8 developer for about seven minutes.

[**0053**] Following development of a layer **104** of photoresist, unexposed photoimageable material of layer **104** may then be removed from substantially planar surface **102** of substrate **100**, as known in the art. The photoimageable material may then be hard baked, as known, if desired. Hard baking may be effected to further cross-link the material that forms protrusion **108**. When SU-8 2025 is used to form protrusion **108**, hard baking may be effected at a temperature of about 150° C. to about 200° C.

[**0054**] When features such as those depicted in **FIGS. 5 through 6**B are to be formed in a microfluidic platform **10** (**FIGS. 1 and 2**) that incorporates teachings of the present invention, these processes may be repeated a plurality of times to form protrusions **108** that include a plurality of superimposed sublayers (not shown) having different configurations that will facilitate the formation of one or more protrusions **108** that have tapered, curved, or other types of nonlinear edges **109** (i.e., edges **109** which are not oriented perpendicularly to the major plane of the mold **110**), as shown in **FIG. 9A** or that will facilitate the formation of corrugations **127** on protrusions **108**, as shown in **FIG. 9B**.

[**0055**] Alternatively, a protrusion **108** with nonlinear or nonperpendicularly oriented edges **109** may be formed by controlling the photolithography process, such as by over exposing, under exposing, over developing, or under developing desired regions of the photoimageable material of layer **104**.

[**0056**] As another alternative, the exposed and developed photoimageable material of layer **104** may be etched or otherwise treated, as known in the relevant art, to form protrusions **108** with nonlinear or nonperpendicularly oriented edges **109**. Of course, the etchants or other treatment processes that are used must be suitable for the photoimageable material from which layer **104** is formed. Such etching or treatment may be conducted either before or after the exposed and developed photoimageable material of layer **104** is hard baked.

[**0057**] As an alternative to the use of a photoresist as the photoimageable material of layer **104**, stereolithographic processes may be used, in which selected regions **106** of layer **104** are selectively exposed to curing radiation (e.g., a UV laser beam) to cure the same, as known, to form protrusion **108**.

[**0058**] The shape, dimensions, and pathway of each protrusion **108** are configured to form a corresponding channel **18** (**FIGS. 1 and 2**) of a microfluidic platform **10** having a complementary shape, complementary dimensions, and a complementary pathway, as desired for use with a particular specific binding assay apparatus **50** (**FIGS. 12 and 13**).

[**0059**] Of course, other processes may also be used to form protrusion **108** on substantially planar surface **102** of substrate **100**, such as the micromachining processes (e.g., masking and etching) that are commonly used in the fabrication of semiconductor devices). When such micromachining processes are used, nonlinear or nonperpendicularly oriented edges **109** may be formed on protrusions by known processes, such as the use of isotropic etchants, facet etching processes, or the like.

[**0060**] Turning now to **FIG. 9**, once mold **110** has been formed, a layer of conformable material may be placed thereon and at least partially cured, or polymerized, to form microfluidic platform **10**. As an example, polydimethylsiloxane (PDMS) may be introduced onto mold **110**, degassed in a vacuum, and exposed to a temperature of about 60° C. for about two hours to about three hours to cure the same.

[**0061**] Once microfluidic platform **10** has been formed, it may be removed from mold **110**, as depicted in **FIG. 10**. Surfaces of microfluidic platform **10** and a complementary specific binding assay apparatus **50** (**FIGS. 12 and 13**) that are to contact one another may then be cleaned.

[**0062**] Next, as shown in **FIG. 11**, microfluidic platform **10** may be positioned over and aligned and assembled with a complementary specific binding assay apparatus **50**, with enlarged regions **22** of channel **18** being oriented adjacent to an in communication with sensing zones **54** of specific binding assay apparatus **50**. Other elements of a biosensor system, including, without limitation, excitation sources (e.g., lights), detectors (e.g., charge-coupled detectors (CCDs)), sample delivery conduits, and the like, may then be assembled or otherwise associated with the resulting structure to facilitate use thereof in specific binding assays.

[**0063**] As an alternative, a microfluidic platform **10** that includes side walls **23'** that are oriented nonperpendicularly to a major plane of microfluidic platform **10**, nonlinear side walls **23'**, or corrugations **27**, **27'**, **27"** may include a plurality of superimposed, mutually adhered, contiguous layers that have been separately formed by one of the above-described processes (e.g., photolithography), then aligned and secured to one another, as known in the art (e.g., prior to hard baking the same, with a suitable adhesive, etc.), to form a microfluidic platform **10** having the desired configuration.

[**0064**] Once microfluidic platform **10** has been formed, microfluidic platform or one or more regions thereof (e.g., channel **18**) may be passivated to prevent or reduce the likelihood of adsorption of the constituents of a sample of sample solution thereto or the reaction of such constituents therewith. By way of example only, such passivation could be effected by treating microfluidic platform **10** with a